

## **New records of pseudoscorpions from the Juan Fernandez Islands (Chile), with the description of a new genus and three new species of Chernetidae (Arachnida: Pseudoscorpiones).**

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**New records of pseudoscorpions from the Juan Fernandez Islands (Chile), with the description of a new genus and three new species of Chernetidae (Arachnida: Pseudoscorpiones).** - The new genus *Selachochernes* gen. n. with the type species *S. alldentatus* sp. n. (♂ only) is described from Masatierra. The new genus is characterized by a rallum of 4 setae, the absence of a tactile seta on tarsus of leg IV, the very unusual dentition of the chelal fingers and the presence of only 3 trichobothria on the movable chelal finger. *Chelanops gracilipes* sp. n. and *Chelanops gracilipalpus* sp. n. are described from Masatierra. *Neocheiridium tenuisetosum* Beier, 1959 is recorded from this archipelago for the first time, *Lechytia kuscheli* Beier, 1957 is briefly redescribed. Additional records are given for species previously recorded from the Juan Fernandez Islands.

**Keywords:** *Selachochernes* - *Chelanops* - *Neocheiridium* - taxonomy.

### INTRODUCTION

The pseudoscorpion fauna of the Juan Fernandez Islands (Chile) has previously been known from Beier's (1955, 1957) publications based on the collections constituted by Rev. Dr G. Kuschel. Eleven species were recorded from Masatierra (8 species) and from Masafuera (4 species), one of them being common to both islands. Most genera and species are endemic to the archipelago, only one species (*Parazaona* sp.) seems to be introduced (found in a house). The genus *Stigmachernes* Beier, 1957 was subsequently synonymized by Muchmore (1999) with *Chelanops* Gervais, 1849.

Years ago, Dr T. Kronstedt (Stockholm) sent me for study, together with other South American material, some specimens from Juan Fernandez Islands (Masatierra) collected by K. Bäckström during the Swedish Pacific Expedition of 1916/17, and by C. Skottsberg in 1955/56. Additionally, the late Prof. F. di Castri had sent to the Muséum d'histoire naturelle, Genève, the pseudoscorpion collection of the late Dr V. Vitali-di Castri with partly identified samples from different localities on mainland Chile. Amongst the unidentified pseudoscorpions, I came across a small collection made by Prof. H. Franz (Vienna) during his stay on Masatierra in 1968, which includes already recorded species, but also a new genus and two new species. The origin of these samples could be identified with the help of Ch. Hörweg (Vienna), who sent me copies of the hand-written lists of H. Franz.

The Vitali-di Castri collection also included material sent on loan to her by the National Museum of Natural History, Budapest, Hungary (type specimens and species from Argentina collected by Gy. Topal in 1961 and published by Beier, 1964b), which has now been returned to Budapest (Dr S. Mahunka). Type specimens collected by G. Kuschel in Chile (Beier, 1964a) and on Juan Fernandez Islands (Beier, 1955, 1957) have been returned to the Naturhistorisches Museum, Vienna (Austria) (Mag. Ch. Hörweg), whence it had probably been obtained on loan.

Unfortunately, most samples in the Vitali-di Castri collection do not have precise labels, only codes, without accompanying explanatory notes. Some codes concerning samples from mainland Chile could be deciphered, but the major part awaits such clarification, the codes corresponding probably to field numbers of ecological surveys carried out by F. di Castri in different regions of Chile.

The holo- and paratypes of the new species are deposited in the Muséum d'histoire naturelle Genève, Switzerland (MHNG, without registration number).

Terminology of the trichobothria follows Chamberlin (1931). Length/breadth ratio is given for pedipalpal segments in dorsal view, except for chelal hand and chela in Chthoniidae, where a length/depth ratio is given, because that was measured in lateral view.

#### ABBREVIATIONS

T... tritonymph; D... deutonymph; P... protonymph;

MHNG Muséum d'histoire naturelle, Genève (Switzerland)

NHMW Naturhistorisches Museum, Wien (Austria)

NRMS Naturhistoriska Riksmuseet Stockholm (Sweden)

S.P.E. Swedish Pacific Expedition

#### LIST OF IDENTIFIED SPECIES ALREADY KNOWN FROM THE ARCHIPELAGO

##### *Lechytia kuscheli* Beier, 1957

MATERIAL STUDIED: MHNG, 1 ♀; Juan Fernandez Is., Masatierra, forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (Sa 197-198). – MHNG, 1 P; Juan Fernandez Is., ex coll. V. Vitali-di Castri (OT-2).

REMARKS: The species is known from different localities on Masatierra; the unique female is characterized as follows. Cephalothorax as long as broad (0.40 mm/0.40 mm); pedipalpal femur 4.3 times longer than broad (0.42 mm/0.10 mm) and 2.0 times longer than patella, which is 1.8 times longer than broad (0.21 mm/0.12 mm); hand 1.7 times longer than deep (0.27 mm/0.16 mm), chela 4.0 times longer than deep (length 0.63 mm); finger 1.5 times (length 0.39 mm) longer than hand. Chelal fingers with about 36 low and partly indistinct teeth (their canals still visible in tooth lamella); apical seta of pedipalpal coxa simple, apex sinoid; coxa of leg I with a pointed anterior projection.

Muchmore (1975) distinguished two groups in the genus *Lechytia* by the form of the apical seta on the pedipalpal coxa, which is either furcate (e.g. *L. sini* Muchmore, *arborea* Muchmore, *chthoniiformis* Balzan) or simple (e.g. *L. hoffi* Muchmore, *L. kuscheli*, and *L. chilensis* Beier).

***Geogarypus bucculentus* Beier, 1955**

MATERIAL STUDIED: NRMS, 1 T; Masatierra, under bark, S.P.E. no. 443, 3.IV.1917, leg. K. Bäckström. – MHNG, 3♂ 2♀ 4T; Masatierra, forest above Juan Bautista, leg. H. Franz (SA 186).

***Neocheiridium tenuisetosum* Beier, 1959**

MATERIAL STUDIED: NRMS, 1 ♀; Masatierra, without date and exact locality, leg. K. Bäckström (S.P.E.).

SHORT DESCRIPTION: Setae of carapace fine, acute and usually simple, those of tergites slightly longer, acute, curved, partly with a tiny tooth; cephalothorax broader than long (0.40 mm/0.51 mm); chelicerae: rallum with 4 setae, distal one large, velum-like; pedipalps: trochanter 1.55 times longer than broad (0.20 mm/0.13 mm), femur 5.15 times (0.46 mm/0.09 mm), patella 3.5 times (0.37 mm/0.11 mm), hand with pedicel 2.1 times longer than broad and 1.9 times longer than finger, length of finger 0.19 mm, chela with pedicel 3.2 times longer than broad (length 0.50 mm): 5 + 1 trichobothria on chelal fingers, each finger with 7 cusped teeth distally. Leg I: femur+patella 4.0 times longer than deep (0.27 mm/0.07 mm), tibia 3.1 times (0.18 mm/0.06 mm), tarsus 4.6 times longer than deep (0.19 mm/0.04 mm); leg IV: femur+patella 5.1 times longer than deep (0.37 mm/0.07 mm), tibia 4.7 times (0.26 mm/0.06 mm), tarsus 5.6 times (0.25 mm/0.04 mm) longer than deep.

This is the first record of this species since its description from Argentina (Bariloche, Rio Negro), hence it represents a new element for the fauna of the Juan Fernandez Islands.

***Asterochernes vittatus* Beier, 1955**

MATERIAL STUDIED: MHNG, 1P 1D; Juan Fernandez Islands, without data, ex coll. Vitali-di Castri (JF-66-I; OTS-1-A). – MHNG; 2T 1D; Masatierra, forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (SA 197-198).

REMARK: No adult female of this species was available, I show therefore the spermatheca of *Asterochernes kuscheli* Beier from mainland Chile (Fig. 23).

***Chelanops insularis* Beier, 1955**

MATERIAL STUDIED: NRMS, 1 ♀; Masatierra, under bark, 10.I.1917, leg. K. Bäckström (S.E.P. 218). – NRMS; 1♂ 1♀ 9T 3D 2P; under bark, 3.IV.1917, leg. K. Bäckström (S.E.P. 443); 1T 2P, without data, leg. K. Bäckström (S.E.P.). – NRMS; 1T 1D; El Pangal, above waterfall, 1956, leg. C. Skottsberg. – NRMS, 1 ♀; Valle Anson, 400 m, 18.III.1966, leg. C. Skottsberg. – NRMS, 1 D, El Yunque, 800 m, 6.III.1955, leg. C. Skottsberg. – MHNG, 5♀ 1T 7D 26P, Masatierra, forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (SA 197-198).

***Chelanops kuscheli* Beier, 1955**

MATERIAL STUDIED: NRSM, 1 T; Masatierra, Valle Anson, 400 m, (2<sup>nd</sup> label in vial: Camate, 500 m, 28.XII.1954), 18.III.1955, leg. C. Skottsberg. – MHNG, 1 D; Juan Fernandez Islands, without data, ex coll. Vitali-di Castri (JF-118 I). – MHNG, 1 P; Masatierra, Valle Lord Anson, 11.XI.1968, leg. H. Franz (SA 191). – MHNG, 1 P; forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (SA 197-198).

***Pseudopilanus fernandezianus* Beier, 1957**

MATERIAL STUDIED: MHNG, 1 T; Juan Fernandez Islands, without data, ex coll. Vitali-di Castri (OT-27).

REMARKS: The specimen fits well to the description given by Beier (1957). Examination of the holotype confirms the presence of a rallum composed of three setae (right chelicera; left chelicera is lacking), the trichobothrial pattern and the presence of spine-like setae on medial face of chelal hand; on the right chelal hand there is only one long spine-like seta near the finger base instead of three on the left one (Beier, 1957, fig. 2). There are 27 teeth on the fixed chelal finger, 30 teeth on the movable finger, the teeth are small, densely set, retrorse, with a small cusp. The venom duct in the movable finger is long, the nodus ramosus is situated halfway between *t* and *st*.

## DESCRIPTIONS

### *Selachochernes* gen. n.

DIAGNOSIS: Member of Chernetidae, Chernetinae. Tegument normally sclerotized, vestitural setae of cephalothorax, tergites and pedipalps short and strongly clavate. Cephalothorax with two eyespots, two indistinct transverse furrows, the subbasal one much nearer to posterior margin than to median furrow; most tergites divided, XI without tactile setae. Chelicera with 5 simple setae on hand; galea short, with 4 apical/subapical branchlets, rallum with 4 setae, the distal one dentate on anterior margin. Pedipalps heavily granulate, the strongly clavate setae of femur and patella inserted on coarser granula, distal setae on hand less clavate, fixed finger at base and on dorsal face with two long and stout setae; fixed chelal finger in distal half with acute, spaced teeth followed by lower, retrorse, cusped teeth, accessory teeth present on antiaxial face: the spaced marginal teeth and the accessory teeth forming two rows of teeth (like shark teeth); movable finger distally with slightly spaced teeth; long venom duct present in movable finger only. Trichobothria: 8 on fixed finger, *est-ib-ib* in middle of finger (near strong seta), *ist* forming a group with *it-et*; movable finger: 3 trichobothria (probably *sb* lacking). Leg IV: tarsus without tactile seta, arolia undivided, claws smooth.

TYPE SPECIES: *Selachochernes allodentatus* sp. n.

DISTRIBUTION: Chile, Juan Fernandez Islands (Masatierra).

ETYMOLOGY: From the Greek noun „selachos“ (cartilaginous fish, shark, ray), referring to the unusual, shark-like arrangement of teeth on the fixed chelal finger.

AFFINITIES: Within the Chernetinae with a rallum of four setae, *Selachochernes* gen. n. is quite isolated and characterized at once by the particular trichobothrial pattern on the fixed finger (*ib* and *ib* distinctly distal of *eb-esb* opposite *est*) and the reduced number of trichobothria on the movable finger. By the presence of strongly clavate and a few long, stout setae on the chela it resembles *Pseudopilanus* Beier (type species *fernandezianus* Beier), but that genus differs in having a rallum of 3 setae, trichobothria *ib-ib* basal near *eb-esb*, and the chelal teeth numerous and closely set (27 on fixed, 30 on movable finger). For further evaluation of importance of some taxonomic characters see the following remarks. Since spermathecae of *Pseudopilanus* species from Chile are unrecorded, at least that of *P. kuscheli* from mainland Chile is shown (Fig. 22) as first step to a better knowledge of this genus.

REMARKS: The presence of two superficially similar and not related genera in the Juan Fernandez archipelago might seem to be improbable, but the differences between *P. fernandezianus* and *S. allodentatus* sp. n. cannot be explained by possible

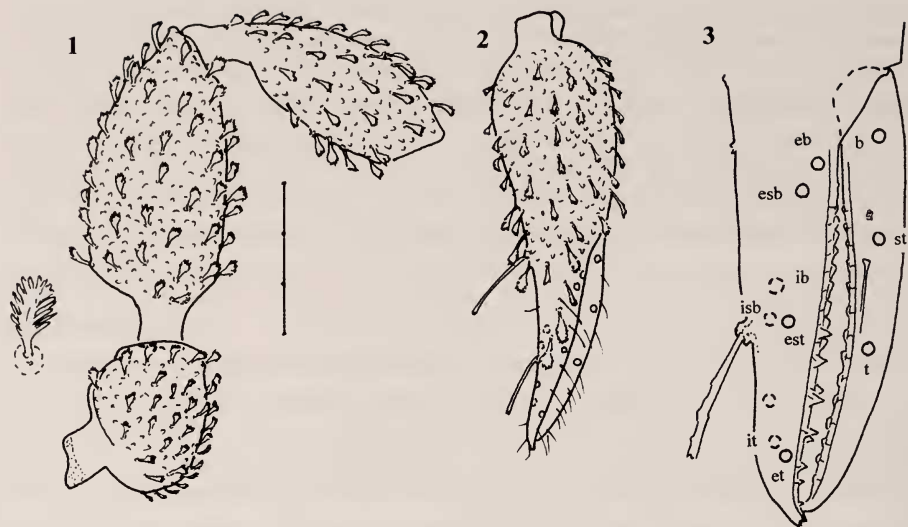
ontogenetic changes or variability of the one or the other taxonomic character (e.g. number of setae of rallum). Within a chernetid genus the number of setae of the rallum is relatively stable, variability is very unfrequent, the setae being frequently difficult to observe (particularly in case of a rallum with 4 setae, observation errors might therefore occur more frequently than natural variability); during ontogeny numbers of these setae are not changing from tritonymphs to adults, in Chernetidae at least. In the following species currently placed in *Pseudopilanus*, the rallum is composed of 3 setae (personal observations): *fernandezianus* (holotype), *kuscheli* (paratype), *chilensis* (syntype), *crassifemoratum* (holotype, paratype). Tooth morphology and arrangement on chelal finger are very similar (small, densely set, retrorse, cusped teeth) in *fernandezianus*, *chilensis* (syntypes: 39-41 teeth on fixed finger, 46 on movable finger), *kuscheli* (syntypes: 34-37 on fixed finger, 37-42 on movable finger), *crassifemoratum* (31 teeth on fixed, 32-33 teeth on movable finger). Tooth morphology is identical in tritonymph and adults (female, male) of *crassifemoratum*, an ontogenetic modification of tooth morphology from tritonymphal to adult stages in Chernetidae is unknown to me. Even in (slightly) sexual dimorphic species like *Pseudopilanus chilensis* (chelal finger of male in middle curved and therefore gaping when closed; those of female straight and not gaping) no difference in tooth morphology or arrangement is observable. This is also the case in strongly dimorphic species like *Parachernes melanopygus* Beier or *Parachernes setiger* Mahnert (Chernetidae, both from Amazonia). Ontogenic changes cannot explain the fundamental difference in trichobothrial pattern found in *alldentatus* (*ist* in distal third of fixed finger and close to *it*, *ib-ib-est* grouped together in middle of finger, *eb-esb* isolated near finger base) and *fernandezianus* (*ib-ib* grouped with *eb-esb* near finger base, *est* in middle of finger), since the position of the trichobothria *ib-ib* compared to that of *eb-esb* and of *est* does not change much from tritonymph to adult stage, as far as documented in the literature. This latter pattern (*ist* indistinctly distal of *est* in middle of finger, *ib-ib* near finger base and distinctly basal of *est-ist*) is found in *P. chilensis*, and also in *kuscheli* and *crassifemoratum* (where *ist-est* are more basally placed), and it anticipates probably the pattern of adult *fernandezianus*. The presence of only three trichobothria in *S. alldentatus* might be variable and of importance on specific and not on generic level (e.g. in *Americhernes incertus* Mahnert from Amazonia). Furthermore, distribution of paraxial trichobothria on the fixed finger is considered of generic importance in Chernetidae (e.g. difference between the groups *Parachernes/Anaperochernes* and *Asterochernes/Parazaona*) (Beier, 1964a).

### *Selachochernes alldentatus* sp. n.

Figs 1-3

MATERIAL STUDIED: MHNG, holotype ♂; Chile, Juan Fernandez Islands, Masatierra, forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (Sa 197-198).

DESCRIPTION: Cephalothorax 0.86 times longer than broad, granulate (granula small and regular, separated by equivalent of own diameter from each another), eyespots indistinct, 4 anterior and 6 posterior strongly clavate setae. Tergites I/II indistinctly divided, XI undivided, III-X divided, all densely granulate, chaetotaxy of half-tergites: 3-3-3-5-5-5-5-5-5-10 (total number; 2 medial discal setae), IV-X including an anterolateral seta; manducatory process with 3 marginal and 1 discal setae, suboral



FIGS 1-3

*Selachochernes allodentatus* gen. n., sp. n., ♂ holotype. (1-2) Left pedipalp. (3) Trichobothrial pattern, with sensillum proximal to *st*. Scale units 0.1 mm.

seta (see Judson, 1998) very short; pedipalpal coxa coarsely granulate, about 40 setae, coxa I 19, II 24, III 36, IV 42, all setae simple, acute; genital operculum with about 34 setae arranged in a semi-circle, the inner ones long and curved; genital entrance with 2/2 short simple and curved setae. Sternites divided, chaetotaxy of half-sternites III-XI: 6+4 discal setae (no suprastigmal seta)-6+1 suprastigmal seta-8-9-8-6-6-5-2 (2 short median setae); anal cone 2+2 setae. Pleural membrane granulate, intersegmental membrane striate.

Chelicera: 5 smooth setae on hand, fixed finger with 3 retrorse teeth and 3 subapical granula, lamina exterior well developed, movable finger with cone-like subapical tooth, subapical seta not reaching tip of galea, short galea with 4 subapical and apical branchlets; serrula exterior with 16 lamellae, rallum of 4 setae, only distal one dentate.

Pedipalps (Figs 1-2) coarsely granulate, the broadly clavate setae on coarser granula, setae on hand more slender; trochanter with rounded dorsal hump, 1.6 times longer than broad, femur abruptly enlarged, 2.4 times, patella 2.8 times longer than broad, club 2 times longer than broad and 2.5 times longer than pedicel, hand with pedicel 1.9 times longer than broad and as long as finger, chela with pedicel 3.6 times longer than broad; one long stout seta on paraxial face of fixed finger base, another long stout seta on dorsal face of fixed finger near trichobothria *est/ist*. Fixed finger with 5 spaced acute teeth followed (basal of *est*) by 9 low, retrorse, densely set teeth, 3 anti-axial accessory teeth (or 3 laterally displaced marginal teeth?), movable finger with 4 high, rounded and 10 low, mostly rounded teeth, no accessory teeth present; venom duct long, nodus ramosus near trichobothrium *st*. Trichobothria (Fig. 3): movable finger with 3 trichobothria only (probably *sb* lacking).

Leg I: femur 1.8 times longer than deep, patella 2.7 times longer than deep and 1.4 times longer than femur, tibia 3.7 times and tarsus 5.3 times longer than deep; leg IV: femur+patella 4.0 times longer than deep, tibia 4.9 times and tarsus 5.7 times longer than deep; undivided arolia as long as smooth claws.

MEASUREMENTS (in mm): Body length 1.8; cephalothorax 0.59/0.69; pedipalps: trochanter 0.33/0.21, femur 0.59/0.24, patella 0.51/0.18, hand with pedicel 0.41/0.22, pedicel length 0.06, finger length 0.42, chela length 0.78; leg I: femur 0.19/0.11, patella 0.26/0.10, tibia 0.27/0.07, tarsus 0.28/0.05; leg IV: femur+patella 0.50/0.12, tibia 0.38/0.08, tarsus 0.33/0.06.

*Chelanops gracilipes* sp. n.

Figs 4-8

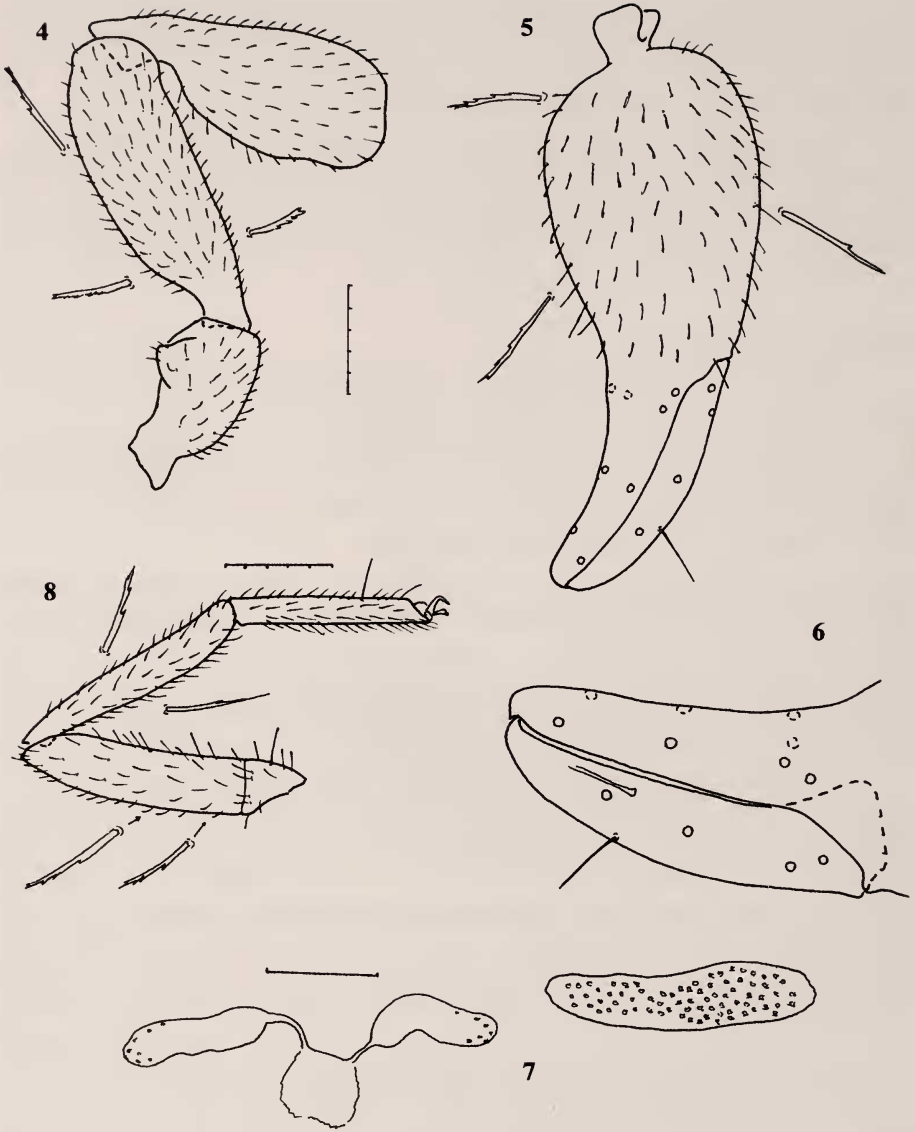
MATERIAL STUDIED: MHNG holotype ♀; Chile, Juan Fernandez Islands, Masatierra, forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (Sa 197-198).

DIAGNOSIS: The new species is characterized by its large size (length of palpal femur 1.40 mm, length of chela 1.57 mm), by the chelal hand being only 1.3 times longer than finger, and the very slender legs (e.g. femur+patella of leg IV 5.2 times, tibia 6.7 times, tarsus 7.6 times longer than broad).

DESCRIPTION: Cephalothorax in anterior half reddish brown, basal half yellowish brown, pedipalps dark reddish brown, tergites brown. Cephalothorax 1.2 times longer than broad; no eyes or eyespots; laterally finely granulate, central part smooth; with two granulate transverse furrows, median furrow laterally curved forward, basal furrow narrower and situated halfway between median furrow and posterior margin; setae short, dentate and slightly clavate, 12 setae at posterior margin plus 17 in metazone; metazone with small central depression (groove). Tergites I-X distinctly divided, setae dentate and clavate, longer on posterior tergites, half-tergites with about 7 (6-9) setae on posterior margin, I-IV with 1 median, 1 lateral and 1 discal seta, V-X with 1 median seta, 1-2 lateral setae and 3-5 discal setae, XI with 16 setae (2 lateral tactile and 4 discal setae). Manducatory process with 3 marginal (suboral seta short) and 4 discal setae, coxae of legs with numerous setae. Spermatheca with paired tubes enlarged in distal two-thirds (Fig. 7); anterior genital operculum with about 40 smooth and acute setae; sternites divided, setae long, acute and finely dentate, chaetotaxy of half-sternites: III 11/12+3 suprastigmal setae, IV 7+1 suprastigmal seta, V-X 10+2 medial+1 lateral setae-12+2+1+2 discal setae-6+2+1+6-10+2+1+2-10+2+2+5-7+2+1+3; entire XI with 10 (2 lateral and 2 submedial tactile setae). Anal cone 2+2 setae.

Chelicera with 7 setae on hand, basal three dentate; fixed finger with 6 retrorse teeth, movable finger with tooth-like subapical lobe; galea long, with 6 apical/subapical curved branchlets; serrula exterior with 26 lamellae; rallum with 4 setae, anterior one dentate.

Pedipalps (Figs 4-5) rugose but not granulate, setae short, dentate and weakly clavate; trochanter with high dorsal hump, 1.8 times longer than broad, femur increasing in breadth distally, 3.1 times longer than broad, patella 2.5 times, club 1.8 times longer than broad and 2.5 times longer than pedicel, hand with pedicel 1.7 times longer than broad and 1.3 times longer than finger, chela with pedicel 2.8 times,



FIGS 4-8

*Chelanops gracilipes* sp. n., ♀ holotype. (4-5) Left pedipalp, setae of fingers omitted; with some vestitural setae at higher magnification. (6) Trichobothrial pattern. (7) Spermatheca with right cribrate plate (ventral view). (8) Left leg IV. Scale units 0.1 mm.

without pedicel 2.6 times longer than broad; finger 1.3 times longer than hand breadth, fingers not gaping when closed, fixed finger with 57 teeth plus 13 anti-axial (=lateral) and 6 paraxial (=medial) accessory teeth, movable finger with 60 teeth plus 11 anti-axial plus 6 paraxial accessory teeth; nodus ramosus in movable finger slightly



proximal to *t*. Trichobothria (Fig. 6): *est* opposite *ist* in middle of fixed finger, *it* proximal to *et* and nearer to finger tip than to *ist*; *st* on movable finger nearer to *t* than to *sb*.

Leg I: femur 1.65 times, patella 3.5 times longer than deep and 1.7 times longer than femur, tibia 5.4 times longer than deep and 1.1 times longer than tarsus, which is 7.15 times longer than deep; leg IV (Fig. 8): femur+patella 5.2 times, tibia 6.7 times longer than deep and 1.3 times longer than tarsus, tarsus 7.6 times longer than deep, tactile seta (length 0.19 mm) in distal half (TS=0.67); subterminal setae smooth, curved, claws smooth and longer than undivided arolia.

MEASUREMENTS (in mm): Body length 5.2; cephalothorax 1.35/1.16; pedipalps: trochanter 0.79/0.45, femur 1.40/0.45, patella 1.37/0.55, hand with pedicel 1.57/0.94, finger length 1.22, chela length with pedicel 2.58, without pedicel 2.41. Leg I: femur 0.42/0.25, patella 0.70/0.20, tibia 0.81/0.15, tarsus 0.73/0.10; leg IV: femur+patella 1.28/0.25, tibia 1.12/0.17, tarsus 0.87/0.11.

ETYMOLOGY: Latin noun meaning „slender leg“, emphasizing the slender legs.

AFFINITIES: The new species seems to be related to *Chelanops kuscheli* Beier, and differs from it by the more slender legs (e.g. femur+patella IV 5.2 vs 3.7-3.8 times, tibia 6.65 vs 4.7-5 times longer than deep) and relatively longer palpal fingers. *Chelanops insularis* Beier (Juan Fernandez Islands, Masatierra) has distinctly longer chelal fingers which are, furthermore, strongly curved and slightly gaping when closed. *Chelanops atlanticus* Beier (from Tristan da Cunha) has similar slender legs, but is notably smaller (length of palpal femur 0.90 mm vs 1.40 mm), has a more slender chela (ratio 3.1-3.2 vs 2.8 times), and has trichobothrium *est* distal of *ist*.

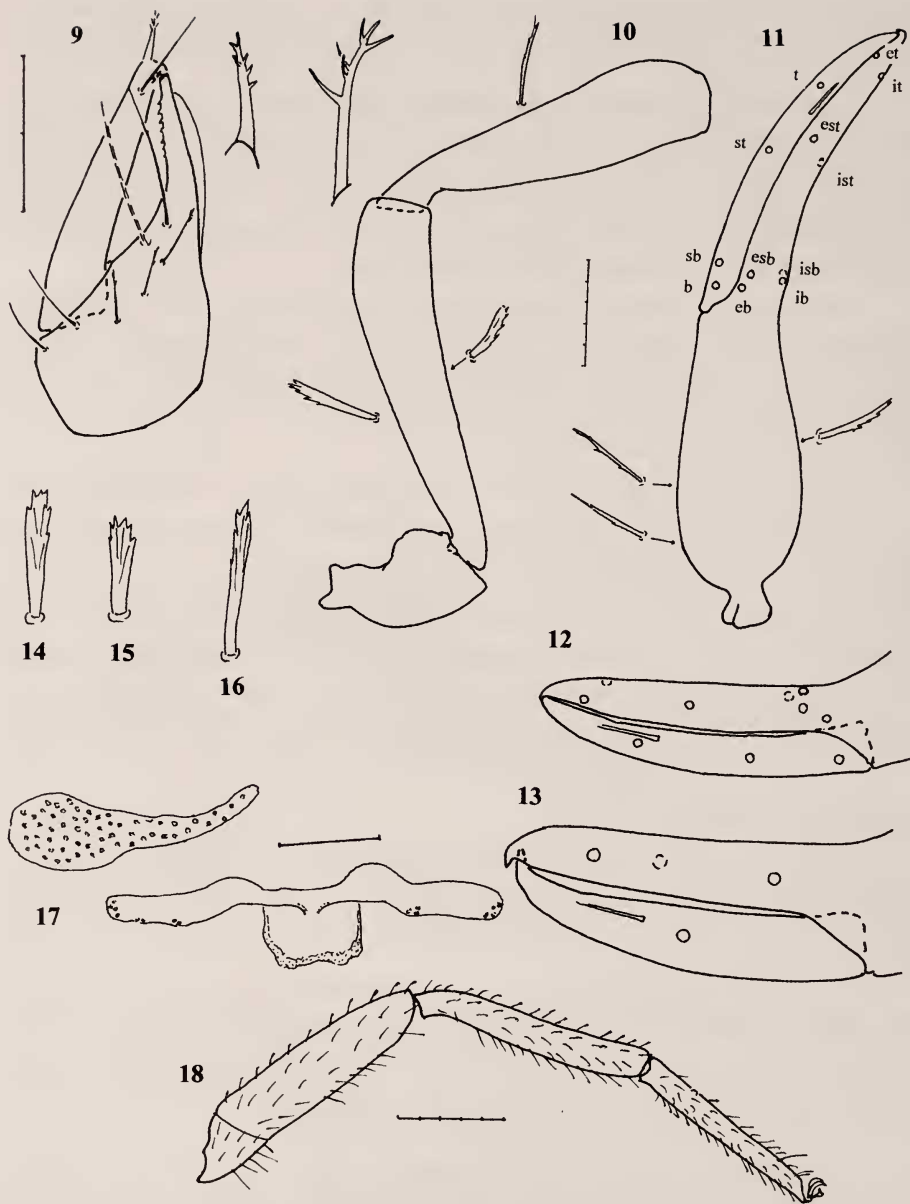
### *Chelanops gracilipalpus* sp. n.

Figs 9-18

MATERIAL STUDIED: MHNG, holotype ♂; Chile, Juan Fernandez Islands, Masatierra, forest above Puerto Ingles, 14.XI.1968, leg. H. Franz (Sa 197-198). – MHNG, paratypes 1 ♂ 3 ♀ 3 trito-, 5 protonymphs; same data. – NHMW; paratype 1 T; Masatierra, Bahia Cumberland, 200 m, 23.XII.1955, leg. Dr G. Kuschel (recorded by Beier, 1957 as *Protowithius robustus* Beier).

DIAGNOSIS: The presence of accessory teeth on the chelal fingers, a rallum of four blades, the position of trichobothrium *ist* slightly proximal of *est*, and the presence of a short tactile seta in the distal third of tarsus IV places the species within the genus *Chelanops*. It is quite isolated within this genus by its very slender pedipalps (femur 4.5-5.0, patella 3.9-4.3, chela 4.5-4.9 times longer than broad).

DESCRIPTION: Cephalothorax and pedipalps brown, legs yellowish. Cephalothorax parallel-sided, 1.2 times longer than broad, finely granulate, prozone nearly smooth in central part; two transverse granulate furrows, subbasal one slightly closer to posterior margin than to median furrow; no eyes or eyespots; setae short, dentate and clavate, 7 on anterior margin, 14-18 setae on posterior margin and in metazone (Fig. 14). Tergites I-X divided, scaly sculptured, half-tergites mostly with 7-9 setae (Figs 15, 16) on posterior margin and 1 medial seta, from IV-X also with 1 lateral and 1 discal seta, XI with 12 setae (2 lateral tactile and 2 medial discal setae). Manducatory process with 3-4 marginal setae (suboral seta short) and 2 discal setae; pedipalpal



FIGS 9-18

*Chelanops gracilipalpus* sp. n. (9) Left chelicera of holotype ♂, with galea of ♂ (left) and ♀ (right) (higher magnification). (10-11) Left pedipalp of holotype ♂, vestitural setae omitted, some setae shown at higher magnification. (12) Trichobothrial pattern of tritonymph. (13) Trichobothrial pattern of protonymph. (14-16) Setae (higher magnification) on posterior border of cephalothorax (14), on tergite I (15) and on tergite XI (16). (17) Spermatheca with right cribrate plate (ventral view). (18) Left leg IV. Scale units 0.1 mm.

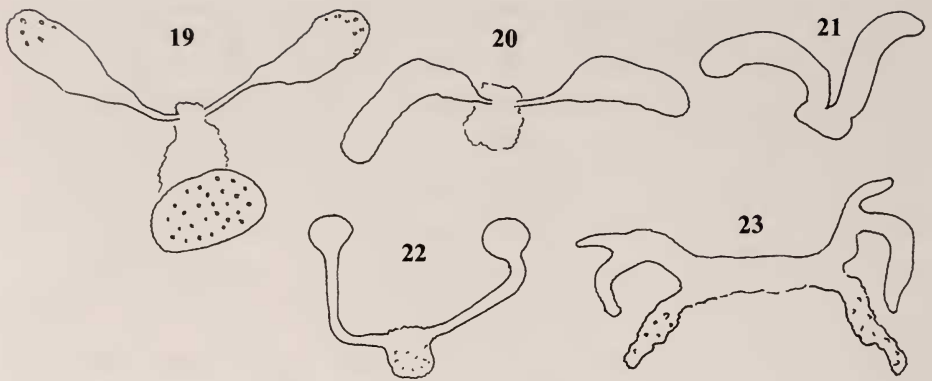
coxae smooth except for a granulate mediobasal zone, coxa I-IV with numerous acute, smooth setae. Male genital chamber with 4 acute setae on each side of entrance; female spermatheca (Fig. 17) with two sac-like tubules; anterior genital operculum of male with about 50 long, acute and curved setae in semi-circular arrangement, that of female with about 40 acute setae (Fig. 17); chaetotaxy of half-sternites: III 9 setae at posterior margin+13 discal setae+4 suprastigmal setae ( $\delta$ ) ( $\text{♀}$ : 14+4 suprastigmal setae), IV 6-8+1-2 suprastigmal setae, V-IX mostly 8-9 (-11) setae, 1-2 medial, 1 lateral and 1 discal setae, X 6-7+2+1+4, entire XI 10 (2 lateral and 2 submedial tactile setae). Anal cone 2+2 (dorsal ones clavate, ventral ones dentate). Pleural membrane granulate.

Chelicera (Fig. 9) with 7 (right chelicera with 6) setae, among them 3 interbasal setae with dentate apex, fixed finger with 6-7 retrorse teeth and 3 apical granules, movable finger with tooth-like subapical lobe; galea of male shorter than that of female, with 6 short branchlets, that of female slender, with six long branchlets in distal half; serrula exterior with 24-26 lamellae, rallum composed of 4 dentate setae of decreasing lengths.

Pedipalps (Figs 10-11): femur and hand finely granulate, patella rugose, nearly smooth; setae dentate and indistinctly clavate on paraxial side of femur; trochanter with large dorsal hump, 1.9-2.2 times longer than broad, femur club-shaped (distally broadest), 4.8-5.0 ( $\delta$ )/4.5-4.8 ( $\text{♀}$ ) times, patella 4.1-4.3 ( $\delta$ )/3.9-4.2 ( $\text{♀}$ ) times longer than broad, club 3.3-3.5 ( $\delta$ )/3.0-3.1 ( $\text{♀}$ ) times longer than broad, hand with pedicel 2.5 ( $\delta$ )/2.2-2.5 ( $\text{♀}$ ) times, chela with pedicel 4.9 ( $\delta$ )/4.5-4.8 ( $\text{♀}$ ) times, without pedicel 4.6 ( $\delta$ )/4.2-4.5 ( $\text{♀}$ ) times longer than broad, finger 1.1 times longer than hand with pedicel. Fixed finger with a large series of cone-like sensilla in paraxial basal third, with 90-96 small cusped marginal teeth, with 15-19 antiaxial and 3-6 paraxial accessory teeth; movable finger: 92-100 marginal teeth, 12-17 antiaxial and 1-3 paraxial accessory teeth; venom duct present in movable finger only, nodus ramosus nearer to *t* than to *st*; trichobothria arrangement (Fig. 11) with a basal group (*eb-esb-ib-ib*), *ist/est* in distal half of fixed finger, *ist* slightly proximal of *est*, *it/et* near fingertip; *st* nearer to *t* than to *sb*.

Leg I: femur 1.8-1.9 times longer than deep, patella 3.9-4.4 times longer than deep and 1.8-1.9 times longer than femur, tibia 6.4-7.1 times and tarsus 7.6-8.5 times longer than deep; leg IV (Fig. 18): femur+patella 5.2-5.3 times, tibia 7.1-7.9 times and tarsus 7.3-9.1 times longer than deep, latter with a short tactile seta (length 0.16-0.19 mm) in distal third (TS=0.64-0.77), undivided arolia shorter than smooth claws, subterminal seta smooth, curved.

MEASUREMENTS (in mm): Body length 3.1-3.6 ( $\delta$ )/4.3-4.6 ( $\text{♀}$ ); cephalothorax 1.21-1.25/1.00-1.07 ( $\delta$ ) ( $\text{♀}$  1.34/1.07-1.11); pedipalps: trochanter 0.74-0.83/0.39-0.40 ( $\delta$ ) ( $\text{♀}$  0.82-0.90/0.40-0.43), femur 1.66-1.72/0.34-0.35 ( $\delta$ ) ( $\text{♀}$  1.69-1.71/0.35-0.39), patella 1.57-1.59/0.37-0.38 ( $\delta$ ) ( $\text{♀}$  1.60-1.62/0.39-0.41), hand with pedicel 1.40/0.56 ( $\delta$ ) ( $\text{♀}$  1.46-1.54/0.62-0.66), finger length 1.50-1.53 ( $\delta$ ) ( $\text{♀}$  1.59-1.67), chela length with pedicel 2.73-2.74 ( $\delta$ ) ( $\text{♀}$  2.91-2.96), without pedicel 2.56-2.58 ( $\delta$ ) ( $\text{♀}$  2.75-2.80). Leg I: femur 0.42-0.45/0.22-0.25, patella 0.76-0.82/0.18-0.19, tibia 0.84-0.85/0.13 ( $\delta$ ) ( $\text{♀}$  0.88-0.90/0.13), tarsus 0.78-0.85/0.10-0.11; leg IV: femur+patella 1.29-1.32/0.25 ( $\delta$ ) ( $\text{♀}$  1.36-1.37/0.26-0.27), tibia 1.11-1.14/0.15-0.16 ( $\delta$ ) ( $\text{♀}$  1.17-1.20/0.15-0.16), tarsus 0.95-0.99/0.11 ( $\delta$ ) ( $\text{♀}$  0.99-1.03/0.11-0.12)



FIGS 19-23

Spermathecae (ventral view). (19) *Chelanops insularis* (S.E.P. 218). (20) *Chelanops kuscheli* (S.E.P. 218). (21) *Chelanops skottsbergi* (Masatierra, La Correspondencia). (22) *Pseudopilanus kuscheli* (Santiago de Chile). (23) *Asterochernes kuscheli* Beier (allotype).

Tritonymph (1 specimen): Half-tergites with 6-7 setae on posterior margin, on posterior half-tergites also 1 medial, 1 lateral and 1 discal seta; chelicera with 6 setae on hand, two basal ones dentate, galea slender with 3 apical and 2 subapical branchlets. Chela 4.6 times longer than broad (1.99 mm/0.43 mm) (no other measurements taken), fixed finger with 71 cusped marginal teeth, 12 antiaxial and 2 paraxial accessory teeth, movable finger with 72 teeth, 5 antiaxial and 1 paraxial teeth; nodus ramosus proximal of trichobothrium *t* (Fig. 12).

Protonymph (1 specimen): Half-tergites with 3 setae on posterior margin; chelicera with 4 smooth setae on hand, galea long, with 2 apical and 1 subapical branchlets. Chela 4.2 times longer than broad (0.87 mm/0.21 mm), fixed finger with 29 marginal teeth (13 distal ones cusped, the following rounded) and 1 distal antiaxial accessory tooth; movable finger with 13 cusped teeth and 23 rounded ones; nodus ramosus distal of trichobothrium *t* (Fig. 13).

ETYMOLOGY: Latin noun, meaning „slender pedipalp“.

DISCUSSION: *Chelanops gracilipalpus* sp. n. is unique within the genus *Chelanops* by its very slender pedipalps. It might have affinities with *Chelanops insularis* (from Masatierra) and *Chelanops skottsbergi* (Beier) (from Masatierra and Masafuera) (see also Fig. 21: spermatheca), which also have a club-shaped palpal femur and relatively long chelal fingers. In spite of the very divergent proportions and measurement, I do not have any doubts concerning its generic placement, even if there are other discrepancies between the diagnosis of the genus *Chelanops* given by Muchmore (1999) and the new species (as well as the other *Chelanops* species from Juan Fernandez Islands): a long, erect tactile seta in the distal half of tarsus IV (here a short tactile seta, merely longer than depth of tarsus); spermatheca having 2 slender tubes of uniform diameter (here two sac-like distal parts with thin basal tubes). These differences do not allow, in my opinion, to place these species in a different genus.

Muchmore (1999) described the spermatheca of *C. coecus* as „occasionally seen as 2 slender tubes of uniform diameter“, and with a long erect tactile seta on tarsus IV. Several females which I identified as *C. coecus* from Argentina and Chile showed a spermatheca of the same form as that figured for *gracilipalpus* (and similar to those of *kuscheli* and *insularis*) (Figs 19, 20). Since the spermatheca is delicate and difficult to observe in the large abdomen, the description of the spermatheca given by Muchmore needs to be verified. The long tactile seta seems to break off easily, but I have never observed for *C. coecus* a short tactile seta as present in *gracilipalpus*, *gracilipes*, *insularis* and *kuscheli*.

The new species is superficially similar to *Protowithius robustus* Beier, and Beier (1957) himself confused a tritonymph of *C. gracilipalpus* sp. n. with *P. robustus*. Besides the major family differences between Chernetidae and Withiidae, *Chelanops gracilipalpus* sp. n. is distinguishable at once from *P. robustus* by its larger size (length of palpal femur 1.66-1.72 mm vs 1.27 mm), more slender pedipalpal patella (ratio 3.9-4.3 vs 2.8), more slender legs, and its trichobothrial pattern (*ist* proximal of *est*, both in middle of the fixed finger, *et* near finger tip, *ist* halfway between *it* and *isb*).

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#### REFERENCES

- BEIER, M. 1955. Pseudoscorpione von den Juan Fernandez-Inseln. *Revista Chilena de Entomologia* 4: 205-220.
- BEIER, M. 1957. Los Insectos de las Islas Juan Fernandez. 37. Die Pseudoscorpioniden-Fauna der Juan-Fernandez-Inseln (Arachnida Pseudoscorpionida). *Revista Chilena de Entomologia* 5: 451-464.
- BEIER, M. 1959. Zur Kenntnis der Pseudoscorpioniden-Fauna des Andengebietes. *Beiträge zur neotropischen Fauna* 1(3): 185-228.
- BEIER, M. 1964a. Die Pseudoskorpionen-Fauna Chiles. *Annalen des Naturhistorischen Museums Wien* 67: 307-375.
- BEIER, M. 1964b. The zoological results of Gy. Topál's collectings in South Argentina *Annales historico-naturales Musei nationalis hungarici, pars zoologica* 56: 487-500.
- CHAMBERLIN, J. C. 1931. The arachnid order Chelonethida. *Stanford University Publications, Biological Sciences* 7(1): 1-284.
- JUDSON, M. L. I. 1998. A sternophorid pseudoscorpion (Chelonethi) in Dominican amber, with remarks on the family. *The Journal of Arachnology* 26: 419-428.
- MUCHMORE, W. B. 1975. The genus *Lechyti* in the United States (Pseudoscorpionida, Chthoniidae). *The Southwestern Naturalist* 20(1): 13-27.
- MUCHMORE, W. B. 1999. Redefinition of the genus *Chelanops* Gervais (Pseudoscorpionida: Chernetidae). *Pan-Pacific Entomologist* 75(2): 103-111.